Listing of the Claims

1. (Currently Amended) A method, comprising:

operating in a multiple input, multiple output (MIMO) mode by a ~~wireless network~~ transmitter device of a wireless network to communicate with a receiver device of the wireless network, the wireless network including at least one transmitter device and a plurality of receiver devices~~, the wireless network device being one of the receiver devices~~;

observing both physical (PHY) layer performance of the receiver device and media access control (MAC) layer performance of the transmitter device; and

~~in the event of a predetermined condition,~~ the ~~wireless network~~transmitter device switching from operating in the MIMO mode to operating in a spatial division, multiple access (SDMA) mode to communicate with the plurality of receiver devices including the receiver device, when poor MAC layer performance below a MAC layer performance threshold is observed for the transmitter device, even though good PHY layer performance above a PHY layer performance threshold is observed for the receiver device.

2. (Currently Amended) A method as claimed in claim 1, wherein ~~the predetermined condition~~ said observing includes observing a latency value of said MAC layer, and said switching is based at least in part on whether the observed latency value of said MAC layer exceeds~~ing~~ a ~~predetermined~~ threshold value or not.

3. (Currently Amended) A method as claimed in claim 1, wherein ~~the predetermined condition~~ said observing includes observing a throughput value of said MAC layer, and said switching is based at least in part on whether the observed throughput value is ~~being~~ below a ~~predetermined~~ threshold value or not.

4. (Currently Amended) A method as claimed in claim 1, wherein ~~the predetermined condition includes a number of collisions exceeding a predetermined value~~ said

observing includes observing a bit error rate of said PHY layer, and said switching occurring even though observing a bit error rate of said PHY layer that is below a threshold value indicating good PHY layer performance.

5. (Currently Amended) A method as claimed in claim 1, wherein ~~the predetermined condition includes a desire to obtain a higher~~ said observing includes observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer, and said switching occurring even though ~~than a~~ observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer that is above ~~obtained by operating in a MIMO mode~~ a threshold value indicating good PHY layer performance.

6. (Cancelled)

7. (Currently amended) A method, comprising:

operating in a spatial division, multiple access (SDMA) mode by a ~~wireless network~~transmitter device of a wireless network to communicate with a receiver device of a plurality of receiver devices of the wireless network, the wireless network including at least one transmitter device and ~~a~~ the plurality of receiver devices~~, the wireless network device being one of the receiver devices~~;

observing both physical (PHY) layer performance of the receiver device and media access control (MAC) layer performance of the transmitter device; and

~~in the event of a predetermined condition,~~ the ~~wireless network~~transmitter device switching from operating in the SDMA mode to operating in a multiple input, multiple output (MIMO) mode to communicate with the receiver device, when poor PHY layer performance below a PHY layer performance threshold is observed for the receiver device, even though good MAC layer performance above a MAC layer performance threshold is observed for the transmitter device.

8. (Currently amended) A method as claimed in claim ~~7~~5, wherein said observing includes observing bit error rate of the PHY layer, and said switching is based at least in

part on whether the observed bit error rate of the PHY layer exceeds a threshold ~~the predetermined condition includes a spectral efficiency per user being below a predetermined~~ value or not.

9. (Currently amended) A method as claimed in claim ~~75~~, wherein said observing includes observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer, and said switching is based at least in part on whether the observed data rate, signal-to-noise ratio, or spectral efficiency is ~~the predetermined condition includes a data rate being~~ below a ~~threshold~~predetermined value or not.

10. (Currently amended) A method as claimed in claim ~~75~~, wherein said observing includes observing a latency value of said MAC layer, and said switching occurring even though observing a latency value of said MAC layer that is below a threshold value indicating good MAC layer performance~~the predetermined condition includes a desire to obtain a higher data rate for at least one user than a data rate obtained for the at least one user by operating in a SDMA mode~~.

11. (Currently amended) A method as claimed in claim ~~75~~, wherein said observing includes observing a throughput value of said MAC layer, and said switching occurring even though observing a throughput value of said MAC layer that exceeds a threshold value indicating good MAC layer performance~~the predetermined condition includes a desire to obtain a higher quality of service for at least one user than the a quality of service obtained by operating in a SDMA mode~~.

12. -14. (Cancelled)

15. (Currently amended) An article, comprising:

a storage medium having stored thereon instructions that, when executed by a computing platform, result in adaptive switching between a multiple input, multiple output (MIMO) mode and a spatial division, multiple access (SDMA) mode by:

operating in a MIMO mode to communicate with a receiver device of a wireless network, the computing platform being a transmitter device~~at least a part of a wireless network device~~ of ~~a~~ the wireless network, the wireless network including at least one transmitter device and a plurality of receiver devices~~, and the wireless network device being one of the receiver devices~~;

observing both physical (PHY) layer performance of the receiver device and media access control (MAC) layer performance of the transmitter device; and

~~in the event of a predetermined condition, the wireless network device~~ switching from operating in the MIMO mode to operating in a SDMA mode to communicate with the plurality of receiver devices including the receiver device, when poor MAC layer performance below a MAC layer performance threshold is observed for the transmitter device, even though good PHY layer performance above a PHY layer performance threshold is observed for the receiver device.

16. (Currently amended) An article as claimed in claim 15, wherein said observing includes observing a latency value of said MAC layer, and said switching is based at least in part on whether the observed latency value of said MAC layer exceeds a threshold value or not~~the predetermined condition includes a latency value exceeding a predetermined value~~.

17. (Currently amended) An article as claimed in claim 15, wherein said observing includes observing a throughput value of said MAC layer, and said switching is based at least in part on whether the observed throughput value is below a threshold value or not~~the predetermined condition includes a throughput value being below a predetermined value~~.

18. (Currently amended) An article as claimed in claim 15, wherein said observing includes observing a bit error rate of said PHY layer, and said switching occurring even though observing a bit error rate of said PHY layer that is below a threshold value

indicating good PHY layer performance~~the predetermined condition includes a number of collisions exceeding a predetermined value~~.

19. (Currently amended) An article as claimed in claim 15, said observing includes observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer, and said switching occurring even though observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer that is above a threshold value indicating good PHY layer performance~~wherein the predetermined condition includes a desire to obtain a higher spectral efficiency than a spectral efficiency obtained by operating in a MIMO mode~~.

20. (Cancelled)

21. (Currently amended) An article, comprising:

a storage medium having stored thereon instructions that, when executed by a computing platform, result in adaptive switching between a multiple input, multiple output (MIMO) mode and a spatial division, multiple access (SDMA) mode by:

operating in a SDMA mode to communicate with a receiver device of a plurality of receiver devices of a wireless network, the computing platform being a transmitter device~~at least a part of a wireless network device of a~~ of the wireless network, the wireless network including at least one transmitter device and ~~a~~ the plurality of receiver devices~~, and the wireless network device being one of the receiver devices~~;

observing both physical (PHY) layer performance of the receiver device and media access control (MAC) layer performance of the transmitter device; and

switching from operating in the SDMA mode to operating in a multiple input, multiple output (MIMO) mode to communicate with the receiver device, when poor PHY layer performance below a PHY layer performance threshold is observed for the receiver device, even though good MAC layer performance above a MAC layer performance threshold is observed for the transmitter device~~in the event of a~~

predetermined condition, the wireless network device switching from operating in the SDMA mode to operating in a MIMO mode.

22. (Currently amended) An article as claimed in claim 21, wherein said observing includes observing bit error rate of the PHY layer, and said switching is based at least in part on whether the observed bit error rate of the PHY layer exceeds a threshold value or notthe predetermined condition includes a spectral efficiency per user being below a predetermined value.

23. (Currently amended) An article as claimed in claim 21, wherein said observing includes observing a data rate, a signal-to-noise ratio, or a spectral efficiency of said PHY layer, and said switching is based at least in part on whether the observed data rate, signal-to-noise ratio or spectral efficiency is below a threshold value or notthe predetermined condition includes a data rate being below a predetermined value.

24. (Currently amended) An article as claimed in claim 21, wherein said observing includes observing a latency value of said MAC layer, and said switching occurring even though observing a latency value of said MAC value that is below a threshold value indicating good MAC layer performancethe predetermined condition includes a desire to obtain a higher data rate for at least one user than a data rate obtained by operating in a SDMA mode.

25. (Currently amended) An article as claimed in claim 21, wherein said observing includes observing a throughput value of said MAC layer, and said switching occurring even though observing a throughput value of said MAC layer that exceeds a threshold value indicating good MAC layer performancethe predetermined condition includes a desired higher quality of service for at least one user.

26.-28. (Cancelled)

29. (Currently amended) An apparatus, comprising:

a transceiver to receive signals from a ~~transmitter~~receiver device of a wireless network, the wireless network including at least ~~the~~a transmitter device and a plurality of receiver devices, the apparatus being a transmitter device of the wireless network and the receiver device being one of the plurality of receiver devices of the wireless network~~at least a part of one of the receiver devices~~;

at least two or more omnidirectional antennas to couple to said transceiver; and a baseband processor to couple to said transceiver, wherein said baseband processor and said transceiver to observe both physical (PHY) layer performance of the receiver device and media access control (MAC) layer performance of the apparatus, to switch from a multiple input, multiple output (MIMO) mode to a spatial division, multiple access (SDMA) mode under a first condition, and to switch from a SDMA mode to a MIMO mode under a second condition, the first condition includes observing poor MAC layer performance for the transmitter device below a MAC layer performance threshold and even though good PHY layer performance above a PHY layer performance threshold is observed for the receiver device, and the second condition includes observing poor PHY layer performance for the receiver device below a PHY layer performance threshold and even though good MAC layer performance above a MAC layer performance threshold is observed for the transmitter device.

30. (Currently amended) An apparatus as claimed in claim 29, wherein the first condition includes observing a latency value of said MAC layer, and said switching from the MIMO mode to the SDMA mode is based at least in part on whether the observed latency value of said MAC layer exceeds a threshold value or not~~at least one of a higher latency, a lower throughput, a higher number of retransmits, and a higher number of receiver devices than a latency, throughput, retransmits, and number of receiver devices, respectively, obtained through the SDMA mode~~.

31. (Currently amended) An apparatus as claimed in claim 29, wherein the second condition includes observing a data rate, a signal-to-noise ratio or a spectral efficiency

of said PHY layer, and said switching from the SDMA mode to the MIMO mode is based at least in part on whether the observed data rate, signal-to-noise ratio or spectral efficiency is below a threshold value or not~~at least one of a lower signal-to-noise ratio, a higher bit error rate, a lower spectral efficiency, a desired higher data rate for at least one receiver device, a desired higher quality of service for at least one receiver device, and a lower number of receiver devices than what can be obtained through the MIMO mode~~.